

**FLEXURAL STRENGTH
OF
CONCRETE
(Using Simple Beam with Third-Point Loading)
AASHTO T 97**

APPARATUS

- [] Testing machine has a verification of calibration within the last 12 months
- [] Compression machine with third-point loading attachments
 - [] Machine calibrated within last 12 months
 - [] Digital readout in lbf and lbf/min
 - [] Printer for printing graph
- [] Timer verified within last 6 months
- [] Leaf type feeler gauges 0.004 in and 0.015 in.
- [] Leather shims, uniform 0.25 in. thick, 1 to 2 in. in width, not wider than specimen
- [] Hand grinder or rubbing stone for grinding beams

PROCEDURE

- [] Test specimen placed and centered on bearing blocks
 - [] If molded, specimen turned on its side with respect to its position as molded
 - [] If sawed, tension face corresponds to the top or bottom of the specimen as cut from the parent material
- [] All surfaces in contact with load applying and support blocks are smooth and free of scars, projections, holes, or inscribed identifications greater than 1/8 in.
- [] Load-applying blocks brought in contact with surface of specimen at the third points between supports and a load of between 3% and 6% of estimated ultimate load applied (approximately 198 lb to 396 lb for 550 psi concrete)
- [] Gaps between specimen and load-applying blocks measured with feeler gauges
- [] No gap greater than 0.004 in. for a 1 in. length exists between load applying blocks and support blocks and the specimen
- [] If gap is > 0.004 in. and ≤ 0.015 over a length of 1 in., the specimen contact surface is ground or capped, or leather strips are used for shims
- [] If gap is > 0.015 in., the specimen contact surface is ground or capped
- [] Load removed from specimen and test started
- [] Hand-operated testing machine
 - [] Hand wheel rotated clockwise and pen kept within spiral loading track
- [] Electronic compression machine
 - [] Specimen loaded continuously without shock
 - [] Load registers 1500 lbf or 2100 lbf after 1 minute on timer and load recorded
 - [] Load recorded each minute until failure
 - [] Load rate kept between 1500 lbf and 2100 lbf for each minute
 - [] Total time and total load recorded when beam breaks
 - [] Average load rate calculated and recorded

- [] Three measurements taken to the nearest 1/16 in. and averaged at one of the fractured faces to determine average line of fracture location of specimen
- [] If fracture occurs outside middle third of beam, the test result is discarded
- [] If fracture occurs within middle third of beam, three measurements are taken at one of the fractured faces to the nearest 1/16 in. (one at each edge and one at the center) to determine the average width and depth of specimen
- [] Modulus of rupture calculated to the nearest 5 psi.
- [] Load verses time graph printed

NA – Not Applicable

X – Requires Corrective Action

√ - Satisfactory

Acceptance Technician

INDOT

Date

Comments: _____
